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ABSTRACT

For more than 70 years researchers have studied the validity of the Scholastic Assessment Test I (SAT I) and its predecessor, the Scholastic Aptitude Test, through hundreds of validity studies conducted at various colleges using the SAT in their admission process. The majority of these studies use high school records and SAT scores as predictors and freshman grade point average as the criterion representing success in college. Validity studies have consistently found that high school grades and SAT scores together are substantial and significant predictors of achievement in college. In these studies, although high school grades are typically slightly better predictors of achievement, SAT scores add significantly to the prediction. These findings tend to hold for all subgroups of students and for all types of measures of academic achievement: freshman grades, course grades, cumulative grades, and measures of persistence. Because persistence in college is influenced substantially by nonacademic factors, the validity coefficients for predicting persistence are slightly lower than for predicting specific academic criteria. For predicting nonacadmeic criteria and nonacadmeic criteria after college, high school grades and SAT scores are not good predictors. (Contains 1 figure, 6 tables, and 19 references.) (SLD)

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The SAT® I and High School Grades: Utility in Predicting Success in College

Wayne J. Camara and Gary Echternacht

Colleges use SAT® I scores and the high school record to predict success in college. Validity studies are conducted to determine the effectiveness of these predictors of success in college. The relationship of the predictors to an appropriate criterion of college success is an indicator of effectiveness.

The relationship between predictors—such as the SAT I and high school grades—and a criterion of college success is usually measured by computing a correlation coefficient. Correlation coefficients range in absolute value from 0 to 1, with 0 representing no association and 1 indicating a perfect association. In validity studies, correlation coefficients are sometimes called validity coefficients. Higher correlations reflect stronger associations between the predictors and the criterion.

Different outcomes may serve as criteria for determining success in college. There is no one agreed upon measure of college success. Academic achievement is most frequently used as a criterion in validating admission tests. Measures of academic achievement that have served as criteria for such validity studies include course grades, grade-point averages (GPA), graduation, attrition or persistence, promotion, teacher ratings, and special awards or honors.

Researchers have studied the validity of the SAT I and its predecessor, the SAT, for more than 70 years through hundreds of validity studies conducted at various colleges employing the SAT in their admission process. The overwhelming majority of these studies use the high school record (i.e., grade averages, rank) and SAT scores as predictors and freshman GPA as the criterion representing success in college. Freshman GPA is the most frequently used criterion because:

KEYWORDS:

SAT I
Validity
Persistence
Admission
Graduation

- The courses that freshmen take are more similar and less variable than at any other year in college, thus minimizing comparability issues that occur with grades;
- Predictor and criterion data are readily available; and
- Freshman grade averages are highly correlated with cumulative grade averages (see, for example, Wilson, 1981, 1983).

Before proceeding with a discussion of results from validity studies, we first describe how correlations or validity coefficients can be used to estimate the effectiveness of predictors such as tests and grades.

VALIDITY COEFFICIENTS

Correlation coefficients are affected by several factors besides the predictors employed in the study. In general, the size of the correlation between predictors like the SAT I and high school record and the criterion is affected by the nature, quality, and stability of the criterion measure used, and the nature and representativeness of the sample participating in the validity study. Hunter and Schmidt (1990), for example, demonstrate that a number of artifacts or errors associated with individual validity studies result in an underestimate of the actual strength of the relationship between predictors and criterion. The most widely recognized difficulty with correlational studies involving college admission is restriction of range in the predictors. Because colleges select students and students select colleges, the range of admission test scores and high school grades of the students attending a specific college is typically much narrower than the range of test scores or grades submitted by the larger applicant pool for the college.

Some institutions find that nearly all of their students have high test scores and grades; other

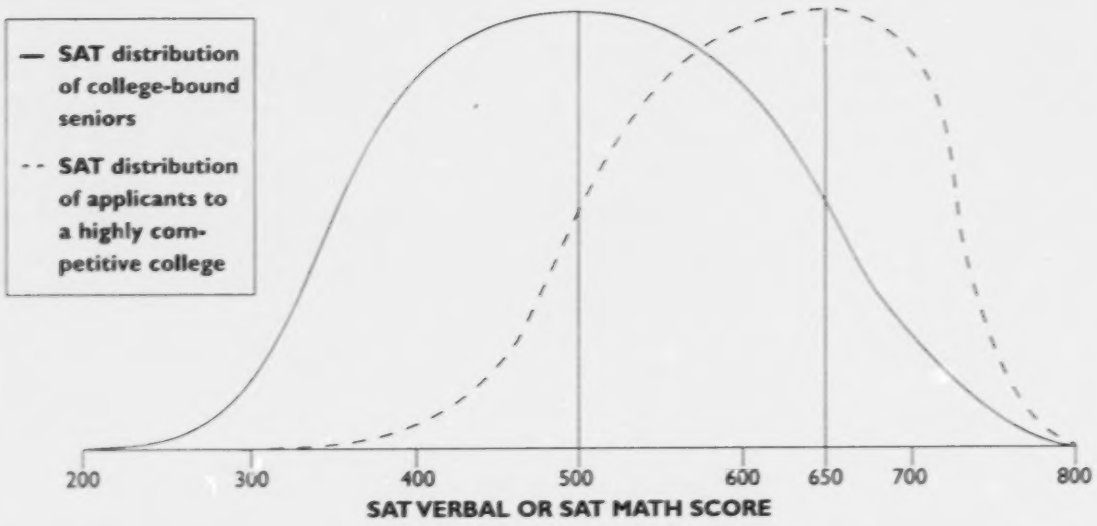

Figure 1. Illustrating differences between the SAT distribution of a national cohort of college-bound seniors and applicants to a highly competitive college.

institutions find that many of their students have lower test scores and grades. Figure 1 illustrates this phenomenon. Because a validity study examines the relationship between the test scores and high school grades with college performance for attending students only (as opposed to examining the larger applicant pool), the resulting correlation underestimates the true validity of the predictors.

A way to eliminate restriction of range in a validity study is to require all applicants to take the same tests, then to accept all applicants, or a representative sample of applicants with a full range of test scores and high school grades, and then to calculate the correlation between predictors and criteria. Colleges are obviously reluctant to use such random selection methods in admission, and other methods are used to correct for restriction in range. There are statistical formulas that correct for such restriction of range in the predictors. Validity studies should report both the statistically corrected and uncorrected validity coefficients. In most cases, if only an uncorrected validity coefficient is provided, the reader cannot gauge the actual utility and validity associated with predictors and may falsely conclude that a much weaker relationship exists between predictors and the criterion.

Variability in the criterion is another artifact that affects validity coefficients. Within an institution, students will take courses ranging in difficulty from advanced math and science courses to remedial courses. When college grades or GPA serve as the criterion, differences in courses students take, the difficulty of those courses, and differences among instructors' grading standards reduce the calculated validity coefficient (Hunter and Schmidt, 1990; Ramist, Lewis, and McCamley-Jenkins, 1993). Since it is impractical to have all students take the exact same courses with the same instructors, statistical corrections are commonly employed to correct for this type of criterion variation. This correction is made in addition to the correction for restriction of range.

Meta-analyses increasingly are being used to integrate findings from different studies, and are often more defensible than results from a single study. Meta-analyses employ corrections for various artifacts associated with individual studies, as well as corrections for small samples that may produce idiosyncratic results in individual studies.

In validity studies of admission tests and high school grades, it is common to report the incremental validity associated with each predictor. That is to say, because most colleges use the SAT I in combination with high school grades for admis-

sion decisions, the increment contributed by the SAT I to the validity coefficient (above that provided by high school grades) gives a useful indication of its utility. Because student performance on the SAT I and high school grades is closely related (a correlation of about .6), the incremental validity provided by an admission test may not initially appear substantial to some. It is useful to also examine the incremental validity contributed by high school grades above and beyond that offered by admission tests. Incremental validity is reported in units of correlation points.

The remainder of this paper briefly highlights evidence concerning the validity of the SAT I and high school grades with a variety of criteria.

FRESHMAN GRADES

Over the years, hundreds of validity studies have been conducted with SAT verbal and math scores (SAT V+M) and high school grades (HSGPA) as predictors and with freshman grades as the criterion. Some studies have used individual course grades as the criterion. Most studies have used freshman GPA as the criterion, however. Exemplary of the studies conducted is that of Ramist, Lewis, and McCamley-Jenkins (1993) who in the mid 1980s studied the validity of the SAT using data from 46,379 students from 38 colleges. Several validity coefficients from that study are presented in Table 1.

Ramist et al. employed three types of corrections to aid in interpretation of the correlations and their value in prediction. The table provides those corrected correlations reported for range restriction in the predictors and unreliability in the criterion, and with an additional correction for course grading practices. Over all groups, Ramist et al. reported findings that are representative of those found in other validity studies of the SAT. Those include:

- The corrected validity coefficient when using both the SAT and high school grades (about .7) is highly significant;
- The SAT adds substantially to the prediction, representing an increment of almost .10 beyond high school grades to the total correlation; and

TABLE 1
CORRECTED AND UNCORRECTED VALIDITY COEFFICIENTS WITH FRESHMAN GPA BY SEX AND ETHNIC GROUP (*n*=46,379)

		Sex		Ethnic Group				
	All	M	F	African American	American Indian	Asian American	Hispanic	White
Uncorrected								
SAT Verbal + SAT Math	.36	.35	.41	.30	.34	.39	.27	.32
HSGPA	.39	.38	.40	.28	.42	.37	.35	.38
SAT + HSGPA	.48	.46	.50	.39	.55	.48	.43	.45
SAT Increment	.09	.08	.10	.11	.13	.11	.08	.07
Corrected for restriction in range and criterion unreliability								
SAT Verbal + SAT Math	.57	.56	.62	.49	.49	.58	.43	.56
HSGPA	.61	.58	.61	.46	.49	.60	.53	.61
SAT + HSGPA	.68	.65	.71	.56	.63	.69	.58	.68
SAT Increment	.07	.07	.10	.10	.14	.09	.05	.07
Corrected for restriction in range, criterion unreliability, and course grading								
SAT Verbal + SAT Math	.65	.63	.70	.62	.50	.63	.53	.64
HSGPA	.69	.65	.70	.57	.59	.65	.61	.69
SAT + HSGPA	.76	.73	.79	.68	.63	.75	.65	.75
SAT Increment	.07	.08	.09	.11	.04	.10	.04	.06

From Table 4 in Ramist et al., 1993

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- Overall, high school grades predict freshman GPA slightly better than do SAT scores, but the combination of SAT scores and high school grades is the best predictor of freshman grade average.

Table 1 also exhibits findings for subgroups that are also representative of findings from other validity studies. Those findings include:

- Validity coefficients tend to be slightly higher for females than for males (about .05 higher);
- Validity coefficients (over all of the predictors) for African Americans and Hispanics tend to be slightly lower than the validity coefficients for whites, and those for Asian Americans tend to be slightly higher than those for whites; and
- The addition of SAT scores to the prediction improves the prediction substantially for all groups. With one exception, the increment from the SAT for nonwhite groups is larger than that for whites.

The reason for the above subgroup differences seems to be a consequence of neither high school grades nor the SAT, but rather a consequence of the courses taken as freshmen, institutional factors, and personal factors. For example, difficulty in adjusting to the higher education environment generally decreases the predictability of first-year achievement.

Ramist et al. found that on average, 54 percent of the predictive weight was on SAT scores, with slightly more weight on the math score than on the verbal score, and 46 percent of the predictive weight on HSGPA. Ramist et al. also found that when individual course grades are used as the criterion, it appears that the SAT is slightly more effective in predicting course grades than high school GPA. Nevertheless, the improvements are small. The pattern established with freshman grades holds for freshman GPA as well as course grades. (Best prediction is reached by using both predictors, the SAT contributing substantially to increasing the accuracy of the prediction.)

Bridgeman, McCamley-Jenkins, and Ervin (2000) studied the validity of the redesigned and recentered SAT—the SAT I—with freshman GPA as the criterion. Their study used data from 48,039 students in 23 colleges collected in the mid 1990s. Table 2 shows their key findings.

Although Bridgeman et al.'s reported validity coefficients differed from those of Ramist et al. in magnitude, in part because different corrections were employed, the general trends were similar:

- The validity coefficient when using both the SAT I and high school grades, though lower, remained highly significant;
- The SAT I added substantially to the prediction;
- Validity coefficients tended to be higher for females than for males; and
- Validity coefficients (over all predictors) for Asian Americans tended to be slightly higher than validity coefficients for other groups.

Because validity coefficients differ slightly by subgroup, researchers have studied how groups are affected when a prediction equation developed on the whole pool of attendees is used. Researchers use the whole group prediction equation to obtain a predicted criterion, then compare the resulting prediction with the actual criterion measure. If predicted grades for the group are lower than actual grades for the group, the result is underprediction. It the predicted grades are higher than actual grades, the result is overprediction.

TABLE 2
CORRECTED VALIDITY COEFFICIENTS FOR PREDICTING FRESHMAN GRADE AVERAGES BY SEX AND ETHNIC GROUP (n=48,039)

		African American		Asian American		Hispanic		White	
Predictor	All	M	F	M	F	M	F	M	F
SAT Verbal + SAT Math	.56	.49	.54	.63	.60	.49	.57	.53	.56
HSGPA	.59	.51	.54	.58	.59	.56	.58	.56	.59
SAT + HSGPA	.65	.56	.61	.67	.67	.59	.65	.62	.66
SAT Increment	.06	.05	.07	.09	.08	.03	.07	.06	.07

From Table 9 in Bridgeman et al., 2000

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In their report, Bridgeman et al. obtained estimates of the amount of over- and underprediction that occurs. Their results are presented in Table 3. The units in the table are in terms of freshman grades, with the scale being a four-point scale. The table shows that:

- The magnitude of over- and underprediction is relatively small, less than .1 GPA units when ethnic groups are combined.
- Female freshman grade averages are slightly underpredicted (negative values in the table), and male freshman grades are slightly overpredicted. This same pattern holds for Asian Americans and whites.
- African-American and Hispanic male freshman grades are overpredicted. High school grades overpredict freshman grades for female African Americans and Hispanics.

What would the results of SAT validity studies be if some criterion other than freshman grades were used to indicate success in college? A small number of studies have been conducted that use other criteria to define success in college. Those studies involved using cumulative grade averages, graduation rates or persistence, and other criteria.

CUMULATIVE GRADES

The rationale for considering cumulative GPA as an indicator of success in college is that it encompasses the entire scholastic performance of a student at a college. Cumulative grade averages appear to provide a more comprehensive view of student academic performance than freshman grades. However, since cumulative grades are more removed from the admission predictors, the resulting validity coefficients are typically slightly lower than those found for freshman grades.

Several problems arise in using cumulative grades as a criterion in validity studies of preadmission data. First, there are apparent differences in courses taken and course difficulty across college majors as students progress through their upper level courses. Second, Willingham (1985) notes that there is far less variance in grades from upper level courses (few students getting C's and D's in their major courses). Third, once students matriculate to college, other measures are available, such as freshman and sophomore grades, that are more relevant and effective in predicting cumulative grades. All of these factors suggest freshman GPA may be a more useful criterion in evaluating admission models because students tend to take similar courses during their first year.

Validity studies using cumulative grades, though less frequently conducted, also have a long history. Burton and Ramist (in press) provide a comprehensive review of SAT validity studies where cumulative grade average is used as the criterion of success. The results of their review are summarized in Table 4, which presents validity coefficients for both cumulative grades and freshman GPA taken from different review papers.

Burton and Ramist's results for cumulative grades indicate:

- High school grades have higher validity coefficients than do SAT scores (as is true of freshman grades); and
- Best prediction is found by using a combination of high school grades and SAT scores (another commonly noted finding that is also characteristic of freshman grades).

Though not indicated in the table, Burton and Ramist found that for SAT scores alone, in studies conducted after 1970, the validity coefficient for the SAT math score had increased significantly (from

TABLE 3
OVER- AND UNDERPREDICTION (-) OF PREDICTORS FOR SEX AND SUBGROUP

	All		African American		Asian American		Hispanic		White	
Predictor	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
SAT Verbal + SAT Math	.11	-.10	.22	-.03	.09	-.06	.19	.01	.11	-.14
HSGPA	.04	-.04	.22	.12	.04	-.01	.20	.17	.01	-.09
SAT + HSGPA	.08	-.07	.14	-.01	.07	-.03	.15	.02	.07	-.09

From Table 6 in Bridgeman et al., 2000

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about .20 in the earliest studies to over .40 in more recent studies). They suggest that this increase in validity coefficient is a result of students taking more quantitative courses than in the past.

The validity coefficients reported in Table 4 are not strictly comparable over the different predictors because different samples were used to calculate the resulting coefficients. Also, only uncorrected validity coefficients were reported because all studies did not report data to enable statistical correction.

The data in Table 4 support Wilson's (1983) contention that validity studies using cumulative grades give similar results to studies using freshman GPA. Also, validity coefficient patterns for the older studies are similar to those of the newer studies, except validity coefficients reported by Bridgeman et al. are lower. A comprehensive study by Willingham, Lewis, Morgan, and Ramist (1990) concluded that the recently observed decline in validity coefficients in all predictors was not due to the nature of any single predictor. They found that validity coefficients tended to be lower in less selective colleges, lower when grading standards differed in freshman courses, and lower when the nature of freshman courses varied widely. The decreasing trend in validity coefficients was traced to an increase in the number of less selective colleges conducting validity studies and the changing nature of freshman course offerings.

Few studies have provided corrected validity coefficients for cumulative grades. Burton and Ramist reported only two such studies where the average increase in validity coefficient for the combined predictors was .06. They also review the results of validity studies involving subgroups. In general, their findings were:

- With respect to over- and underprediction involving gender of the student, they found three studies reporting underprediction for women (only about .05 in GPA units). Once statistical corrections were made to the data, however, the underprediction was eliminated.
- With respect to African Americans, as with freshman grades, overprediction and lower validity coefficients have been found (see, for example, Bowen and Bok, 1998; Nettles, Thoeny, and Grosman, 1986; Tracey and Sedlacek, 1985). Burton and Ramist note, however, that the studies finding lower validity coefficients are small and may not be representative.
- With respect to students with disabilities, Ragosta, Braun, and Kaplan (1991) found slightly higher validity coefficients (about .02) for cumulative grades.

At a summary level, the results of validity studies conducted with cumulative grades as the criterion provide more confirmation of the findings in studies using freshman grades rather than new insights. Overall, the pattern of validity coefficients remains consistent—high school grades have slightly higher validity coefficients than do SAT scores, and the addition of SAT scores to the prediction substantially increases the accuracy of the prediction.

PERSISTENCE

The ultimate goal for most parents, colleges, and students is graduation. Research findings suggest,

TABLE 4
UNCORRECTED VALIDITY COEFFICIENTS REPORTED IN VALIDITY SUMMARY REPORTS USING CUMULATIVE AND FRESHMAN GRADES AS THE CRITERION

Criterion and source	SAT Verbal + SAT Math	HSGPA	SAT Verbal + SAT Math + HSGPA
Cumulative GPA			
To mid 1970s—Wilson, 1983	.42	.49	.47
To early 1990s—Burton and Ramist, in press	.36	.42	.52
Freshman GPA			
To early 1980s—Ramist, 1984	.42	.48	.55
Mid 1990s—Bridgeman et al., 2000	.35	.36	.44

From Table 3 in Burton and Ramist, in press

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however, that persistence in higher education is heavily influenced by nonacademic factors such as finances, family, and social considerations. Studies using graduation as a criterion should result in lower validity coefficients than studies using grade averages because graduation encompasses more than just academic achievement and because the criterion is measured very differently. Graduation is measured dichotomously—students either graduate or they don't. This reduces the variation of the criterion (and the resulting validity coefficients). A small number of studies have examined the effectiveness of the SAT, high school grades, and other factors in persistence in college. Some of the specific criteria employed in studies of college persistence include graduation, persistence past freshman year to sophomore year, and time-to-degree.

Persistence studies are difficult to conduct because students take varying times to graduate and because students who transfer are difficult to track. Wilson (1980) studied the persistence of minority and nonminority students in a state university over a six-year period. Wilson found that admission data—SAT scores and high school grades—were related to persistence, hours completed, and hours passed. Wilson used a scale of seven categories of persistence ranging from continued freshman status to post graduate enrollment six years after admission. Significant in Wilson's study was that the relationships were much stronger for minority students than for nonminority students. For nonminority students the correlations between persistence and SAT Verbal, SAT Math, and high school rank were .23, .26, and .34, respectively. For minority students the correlations between persistence and SAT Verbal, SAT Math, and high school rank were .40, .30, and .44, respectively.

Astin, Tsui, and Avalos (1996) provide a summary of validity study research related to persistence. In their study, they analyzed 76,000 students entering 365 institutions in 1985. They present a table showing the relationship between admission predictors and graduation. The relationship is in the terms of the percentage of students who graduated for various combinations of SAT scores and high school grade averages. A summary of the table appears in Table 5.

Table 5 shows that students with high SAT scores and high grades are likely to graduate and that students with low SAT scores and low high school grades are much less likely to graduate. This illustrates the strength of the relationship between the admission predictors and graduation and is consistent with evidence reported by the National Center for Educational Statistics (1984).

SAT scores and high school grades are both highly related to graduation, though the magnitude of the coefficients is understandably less than when GPA is used as the criterion. Willingham (1985), for example, found a validity coefficient for the SAT and high school grades of .43 with freshman grades, but only a validity coefficient of .29 with graduation as the criterion. Willingham also found that the graduation rate at institutions was highly predictable of whether an individual graduated. Burton and Ramist found several studies that concluded that postadmission variables (e.g., freshman GPA, persistence to the sophomore year) provide better prediction of persistence and graduation than do preadmission variables.

TABLE 5
PERCENT OF STUDENTS GRADUATING FROM COLLEGE BY HIGH SCHOOL GRADE AVERAGE AND SAT SCORE LEVEL

	SAT Verbal + SAT Math					
High School Grade Average	Less than 700	700–849	850–999	1000–1149	1150–1299	More than 1300
A	28%	45%	55%	64%	71%	80%
B	21%	32%	39%	46%	51%	48%
C+	17%	18%	24%	27%	28%	—

From Astin, Tsui, and Avalos, 1996. Reprinted with permission.

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With respect to graduation and subgroups, researchers have found:

- SAT scores and high school grades combined provide the best prediction of college graduation, but the relationship is lower than with academic criteria;
- The SAT alone correlates approximately .30 with graduation, but the overall college graduation rate is a better predictor of student graduation than either the SAT or high school grades;
- Women are more likely to graduate than men (Astin et al., 1996; Bowen and Bok, 1998);
- African Americans and Mexican Americans are less likely to graduate than whites (Astin et al., 1996; Bowen and Bok, 1998); and Asian Americans are more likely to graduate than whites (Astin et al., 1996).

Strenta, Elliot, Adair, Matier, and Scott (1994) have studied student persistence in science in highly selective schools. They were concerned with the relatively high attrition of women in science and mathematics majors. Though only 35 percent of women and 49 percent of men persisted in science majors, gender added little to the prediction of persistence once preadmission variables were taken into account. Low grades in early required science and math courses accounted for much of the attrition. High SAT math scores were associated with success in these courses, which accounted for its association with persistence in science.

In summary, SAT scores and high school grades relate significantly to graduation. The validity coefficients from studies using graduation as the criterion tend to result in slightly lower validity coefficients than when actual grades are used as the criterion. Most studies also report graduation rates rather than validity coefficients.

OTHER CRITERIA

In general, there are few examples of validity studies that have used criteria other than grades, persistence, or graduation and predictors other than high school grades and test scores. One reason for this is relatively scarce data on the outcomes of higher education (see, for example, Chickering, 1999). Two exemplary studies have concerned themselves with relating admission measures to outcomes of higher education that are more broad than grades, persistence, or graduation.

Willingham (1985) studied nine institutions and the outcomes these institutions established and appropriate predictors of success. In Willingham's study, the nine institutions defined success in terms of scholarship, leadership, and artistic or athletic accomplishment. Faculty ratings indicated that each of these three outcomes was about equal in importance. Of the many preadmission variables studied, only four provided information beyond what is available from high school grades and SAT scores. Those predictors were high school honors, school reference, the applicant's personal statement, and a student's continuing successful effort in two or more activities.

Willingham's findings are summarized in Table 6. In the table are average uncorrected correlations between various predictors and criteria. The criterion "most successful" is an overall rating of the student's success provided by faculty. The four pre-

TABLE 6
AVERAGE UNCORRECTED CORRELATIONS BETWEEN FOUR OUTCOMES OF HIGHER EDUCATION AND SETS OF PREDICTORS

Predictor	Scholarship	Leadership	Accomplishment	Most Successful
HSR + SAT	.57	.20	.24	.36
HSR + SAT + additional 4 preadmission measures	.61	.33	.34	.45
Increment from using the additional 4 preadmission measures	.04	.13	.10	.09

From Table 5.2 in Willingham, 1985

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dictors were measures for those items bulleted above. High school record (HSR) and SAT scores appear to be a better prediction of acceptance into doctoral, law, or medical programs than graduation (Willingham, 1998). Students with high SAT scores and high school rank were also more likely to complete double majors and to graduate early.

In a study aimed at analyzing the effect of using race in admission, Bowen and Bok used measures of post college success—e.g., attainment of higher degrees, post-graduation income, leadership, and job satisfaction—with preadmission high school rank and SAT scores. Their study used data from 32,000 students in 28 selective institutions who made up the class of 1989 and another 30,000 students who made up the class of 1976. SAT scores and the high school record were significant predictors for all criteria except postgraduate leadership and job satisfaction. As did Willingham, Bowen and Bok found that SAT scores were strong predictors of attaining advanced degrees, even when measures of academic achievement in college were included in the prediction.

Consistent with other research, Bowen and Bok found that the high school record and SAT scores were best at predicting academic success. High school record and SAT scores were only slightly related to income and virtually unrelated to job satisfaction, community leadership, and involvement in youth activities. The best predictor of such outcomes was income. Job satisfaction and leadership were not only unrelated to the preadmission variables, they were also unrelated to post college variables such as income, marriage, and children.

The few studies using nonacademic criteria for success suggest that the SAT and high school record have at best a weak relationship to nonacademic success both during college and especially after graduation. As precollege measures of academic success, the SAT and high school record are most valuable when used to predict academic success in college.

SUMMARY

The SAT has proven to be an important predictor of success in college. Its validity as a predictor of success has been demonstrated through hundreds of validity studies. These validity studies consistently find that high school grades and SAT scores together are substantial and significant predictors of achievement in college. In these studies, although high school grades typically are slightly better predictors of achievement, SAT scores add significantly to the prediction. These findings tend to hold for all subgroups of students and for all types of measures of academic achievement—freshman grades, course grades, cumulative grades, and measures of persistence. Because persistence in college is influenced substantially by nonacademic factors, the validity coefficients for predicting persistence are slightly lower than for predicting specific academic criteria. Nonetheless, predictions of persistence are good. For predicting nonacademic criteria and nonacademic criteria after college, high school grades and SAT scores are not good predictors.

The authors are Wayne J. Camara, vice president of research at the College Board, and Gary Echternacht, an independent consultant in assessment.

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